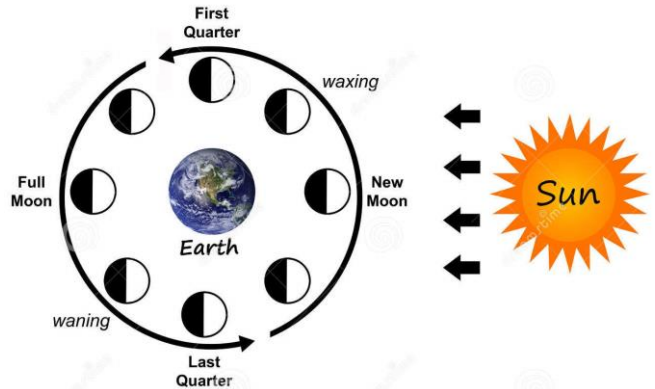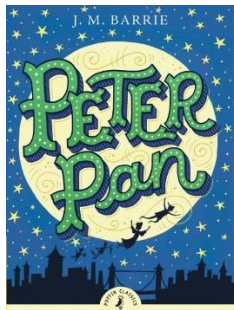**Stories & STEM**

LIGHT and DARK (3-5)

The SCIENCE of SHADOWS:

- **Shadows** are the dark figures cast upon a surface when light is blocked.
- To create a shadow, and object must be **between** the light source and its shadow.
- The **phases of the moon** are NOT caused by the earth's shadow. A **lunar eclipse** IS caused by the earth's shadow when earth passes *between* the moon and sun.
- The moon is **waxing** when we can see more of it. **Waning** occurs when the moon is getting darker, and we see less of it.

LITERACY CONNECTION:

The adventures of [Peter Pan](#) have been told through books, plays and movies since 1904. J.M. Barrie's tale of the boy who never grew up begins when he loses something – his shadow!

Don't have the book at home? Visit the Open Library for access to various [digital versions](#).

ACTIVITY: EXPERIMENTING with SHADOWS

Materials: paper, scissors, tape, pencil/stick, flashlight

1. Draw a simple shape (circle, triangle, heart) on the paper and cut it out.
   TIP: The shape should be about the size of a sticky note
2. Place shape near the top of a pencil, and attach it with tape.
3. Shine the flashlight on the paper shape – do you see the shadow?
4. How do you make the shadow bigger or smaller? Can you change the shadow's shape?

What is happening? The absence of light creates a shadow, but shadows are not exact copies of the object blocking the light. [Shadows change](#) depending on the strength and direction of the light source.

EXPLORE: Go outside with your shape, pencil and a fresh piece of paper. Put the stick in the ground and find the best place to trace the shadow. Go out again at a different time of day and trace it again – are the shadows the same? Bring out other objects and experiment with the different shapes!

For step-by-step instructions, watch the video at: [Shadow STEM Activity](#)